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BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of	)	
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HAWAIIAN ELECTRIC COMPANY, INC.	)	Docket No. 05-0069
	)	
For Approval and/or Modification of	)	
Demand-Side and Load Management	)	
Programs and Recovery of Program	)	
Costs and DSM Utility Incentives.	)	
	)	

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PUBLIC UTILITIES COMMISSION

OPENING BRIEF OF

ROCKY MOUNTAIN INSTITUTE

AND

EXPERIENCE AND QUALIFICATIONS OF WITNESSES

AND

CERTIFICATE OF SERVICE

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OPENING BRIEF OF

ROCKY MOUNTAIN INSTITUTE

Rocky Mountain Institute (RMI) respectfully submits it Opening Brief for consideration by the Commission and parties.

SYNOPSIS OF RMI'S POSITION

Summarized concisely below are RMI's positions regarding the issues in this docket. Each position is explained in more detail further below.

REGARDING STATEWIDE ENERGY POLICY ISSUES

(1) Utility ratepayer funded DSM is an essential component of Hawaii's energy policy.

(2) RMI recommends that the Commission adopt a hybrid market structure. RMI and HECO agree on this issue and have both provided criteria to determine which programs should be implemented by the utility and which should be implemented by a third party administrator. RMI concurs with HECO that the programs for the hard to reach sectors, RLI, Schedule G (small commercial), rental, multi-family, and the ESH program, all should be given the an independent

third party administrator. RMI recommends that the Commission provide the third party administrator with enough flexibility to offer innovative financing programs, make decisions rapidly, and provide enough funding to allow for a successful start-up. (re: Issue No. 2)

(3) The utilities and any third party administrators should be entitled to recover the reasonable and approved expenditures for DSM programs through a volumetric tariff implemented as a surcharge on utility bills. (re: Issues Nos. 3 and 4)

(4) A proceeding should be implemented, within six months, to consider a decoupling mechanism for Hawaii's investor owned utilities to address the DSM revenue erosion issues framed by RMI in this docket. The utility should be allowed to recover its fixed costs determined in the applicable rate case with consideration for revenue erosion that results from energy efficiency program implementation. The existing incentives for a utility to maintain and increase energy sales between rate cases should be removed. (re: Issue No. 5)

(5) The utility and third party administrator should be rewarded for reaching a threshold level of performance with incentives that are no greater than the utility shareholder earnings on ratebased supply side costs that the portfolio of DSM programs displaces. RMI recommends that the Commission adopt HECO's most recent revised incentive proposal identified at the panel hearings[1] but with one modification. HECO's most recent proposal is a shared savings mechanism that provides an incentive of 5% of the net demand side program benefits upon achieving 80% of the program goal with a cap of $4.0 million (with no separate additional recovery of lost margins). This proposal should be modified to provide a further limit on the incentive level to no more than the utility earnings opportunities foregone by implementing

[1] RMI may further clarify its reference to HECO's most recent incentives proposal based on the characterization of the proposal in the Opening Briefs.

DSM programs in lieu of supply-side ratebased investments. RMI may further clarify its recommendation on this matter based on HECO's characterization of its final utility incentives proposal in the Opening Briefs. (re: Issue No. 5)

(6) HECO's periodic reports documenting DSM program costs, accomplishments and surcharge recovery should be reviewed by an independent contractor selected by and reporting to the Commission and funded as a DSM expense. (re: Panel Hearings Issues)

(7) Goals for attainment of energy (kWh) and capacity (kW) savings should be established for each of Hawaii's energy utilities. (re: Issue No. 1) Normally the goals should be established in each utility's IRP process. An initial energy efficiency goal of 0.6% per year should be established in this docket to be reviewed and amended based on findings in each utility IRP proceeding.

REGARDING HECO'S PROPOSED DSM PROGRAM ISSUES

(8) The Commission could consider issuing an interim order addressing HECO's specific application (HECO's Proposed DSM Program Issues # 6 through #9) if the Commission resolves these issues prior to resolving the broad policy issues in this docket.

(9) HECO's original proposals for lost margins and shareholder incentives should be rejected. As noted above, however, RMI recommends as a statewide energy policy issue that the Commission adopt HECO's most recent revised incentive proposal with one modification and as possibly further clarified based on characterization of HECO's final proposal in the Opening Briefs. (re: Issue No. 8)

(10) HECO's proposal to recover DSM expenditures through base rates should be rejected. (re: Issue No. 7)

(11) HECO's proposed energy efficiency program portfolio should be given immediate but only conditional approval. (re: Issue No. 9)

(a) HECO should be given permission to proceed with its proposed programs but explicitly subject to ongoing review by the Commission (i) based on annual reports of program accomplishments, costs and cost recovery and (ii) based on any pertinent findings from review of HECO's pending IRP application.

(b) Cost recovery for implementation of HECO's programs should be implemented as a surcharge that is explicitly subject to ex poste reconciliation to provide for recovery of actual, reasonably incurred and approved program expenditures.

(c) Unless the Commission intends to promptly identify a third party program administrator for this purpose, HECO should be directed to promptly develop two additional DSM programs including an affordable housing residential new construction program and a "Pay-As-You-Save" low income solar water heating and photovoltaic program.

(12) The Commission should make an interim finding, subject to ongoing review, that HECO's proposed portfolio of energy efficiency programs is cost-effective based on a preponderance of sufficient albeit imperfect evidence. (re: Issues Nos. 6 and 9)

(a) The Commission should explicitly note that neither the methods nor the specific implementation of analyses used by HECO to establish the cost effectiveness of its programs are approved or rejected for purposes of application to later proceedings.

(13) The Commission should set HECO's initial energy efficiency goals at 0.6% per year, approximately equal to HECO's projected impacts of its proposed energy efficiency program portfolio. (re: Issue No. 6)

STATEMENT OF POSITION REGARDING THE ISSUES IN THIS DOCKET

A. STATEWIDE ENERGY POLICY ISSUES

(1) Utility ratepayer funded DSM is an essential component of Hawaii's energy policy.

RMI holds that energy efficiency and demand-side management (collectively: DSM) are an established and essential component of Hawaii's energy strategy and policy.

(2) DSM should be implemented by the utilities and, for specific programs as determined by specific criteria, by third party implementers and/or administrators. (re: Issue No. 2)

In its Final Statement of Position (FSOP) RMI lists possible market structures, identifies criteria for consideration of market structures and states RMI's position regarding the most appropriate market structure for DSM programs in Hawaii. RMI presents a detailed characterization of its recommended market structure in RMI FSOP Exhibit A. RMI's position remains consistent with the arguments and positions on this issue expressed in its FSOP (RMI FSOP, pp.11-17 and RMI FSOP Exhibit A) which are incorporated here by reference.

SUMMARY OF RMI'S POSITION

For Hawaii's investor owned electric utilities RMI recommends a "hybrid" market structure which combines a utility administered DSM market structure with a non-utility administered structure for specific programs. A recommended market structure is presented in RMI FSOP Exhibit A along with a process for integration of the DSM planning, program design,

implementation and evaluation functions in the context of the utility IRP process, implementation of the renewable portfolio standards, DSM program application proceedings and utility general rate cases. RMI concurs with HECO that the programs for the hard to reach segments, RLI, Schedule G (small commercial), rental, multi-family, and the ESH program should all be given to an independent third party administrator.

The existing utility-only market structure should apply to Kauai Island Utility Cooperative (KIUC) rather than any alternative market structure except that, if a statewide non-utility DSM administrator (or fund administrator) is established, KIUC should work in partnership to the extent that benefits to KIUC's customers can best benefit.

Alternative market structures should not apply to the The Gas Company (TGC) unless and until it is decided to implement DSM programs for TGC's customers.

If the Commission establishes a public benefits fund pursuant to Chapter 269 (as recently amended in the 2006 legislative session by SB3185) the fund should be implemented as an escrow account or other secure account maintained by each applicable utility, under the control of the Commission to be disbursed directly as the Commission orders. Ratepayer funds for DSM should not be transferred to any state agency fund that either requires legislative or administration budget approvals or is accessible to the legislature for transfer to other purposes than those determined by the Commission.

DISCUSSION

Adoption of a hybrid market structure that provides for both utility and non-utility DSM program administration provides flexibility. At least some DSM programs should probably remain under the administration of the utility. For example, load management programs that

incorporate direct control of customer loads in tight coordination with utility system operation needs are probably most effectively planned, designed and implemented by utility management. Other DSM programs could possibly be implemented and/or administered most effectively by non-utility entities. If the Commission ultimately decides to establish a non-utility DSM administrator (or a fund administrator in conjunction with a public benefits fund) for some or most DSM programs, the RMI hybrid structure would allow a reasonable transition and provide for some specific programs to remain under utility administration.

One important consideration is the extent to which Chapter 269, as recently amended in the 2006 legislative session by SB3185, would facilitate, limit or dictate specific aspects of establishing a DSM market structure. Most of the provisions of the SB3185 amendments to Chapter 269 regarding a public benefits fund and appointment of a "fund administrator" are not mandatory and are delegated to the Commission's discretion. Some provisions are mandatory if the Commission establishes a public benefits fund.[2] Note that these provisions could be interpreted to apply to **any** non-utility entity that would operate and manage any programs that use ratepayer funding. The statute, as amended, describes a systems benefit fund to be "ratepayer funds that shall be used to support energy-efficiency and demand-side management programs and services, subject to the review and approval of the public utilities commission," (section 269-A). The statute also states that, "If the public utilities commission establishes a public benefits fund, the public utilities commission shall appoint a fund administrator to operate and manage any programs under section 269-A." Careful consideration should be given to the

[2] The statute provides that the fund administrators' duties and responsibilities shall be established by rule or order. A list of provisions in the section of SB3185 temporarily codified as "269-D" is mandatory.

extent that the mandatory provisions of the recently amended statute may apply to any non-utility DSM administrator utilizing ratepayer funds.

(3) The utilities and any third party administrators should be entitled to recover the reasonable and approved expenditures for DSM programs through a volumetric tariff implemented as a surcharge on utility bills. (re: Issues Nos. 3 and 4)

There is no disagreement that it would be appropriate for a utility to recover actual costs of implementing any approved utility-administered DSM programs and any utility incentives that are approved by the Commission. If ratepayer funded DSM is implemented by a non-utility entity, the utility should be entitled to recover any actual costs of billing and necessary administration of funds as approved by the Commission.

The utility should not be allowed to recover costs for programs or portions of programs that do not further approved DSM energy efficiency goals, integrated resource planning goals or other goals specifically identified by the Commission for DSM programs. For example, publicity that is really most accurately determined to be advertising for the utility rather than approved DSM programs or components of programs that are primarily load building in nature should not be recovered from utility customers.

RMI recommends that the costs of ratepayer funded DSM programs should primarily be recovered through a surcharge mechanism subject to adjustment and reconciliation. DSM expenditures collected in base rates should be limited to labor expenses for DSM related positions that, as of the date of the beginning of the rate case test year, have already been established and filled for a period of time sufficient to demonstrate that the positions are necessary and ongoing in nature.

RMI's FSOP at pages 17 - 20 provides a discussion and list of factors regarding collection of expenses through base rates versus surcharge recovery, both generally and specifically regarding DSM expenditures. This discussion is incorporated here by reference. In short, although base rates are the most appropriate method for the recovery of most utility expenditures, a surcharge recovery mechanism is most appropriate for DSM resources for the extensive list of reasons cited.

(4) A proceeding should be implemented to consider a decoupling mechanism for Hawaii's investor owned utilities to address DSM revenue erosion issues. (re: Issue No. 5)

RMI argues in this docket that a decoupling mechanism should be established to remove the existing incentive for utilities to increase sales volumes between rate cases and ensure that diligent implementation of energy efficiency programs will not diminish the utility companies' opportunity to earn a fair rate of return. The utility should be allowed to recover its fixed costs determined in the applicable rate case with consideration for revenue erosion that results from energy efficiency program implementation. The existing incentives for a utility to maintain and increase energy sales between rate cases should be removed.

In its FSOP and exhibits RMI provided extensive discussion of the issue of revenue erosion, alternate mechanisms to address revenue erosion, criteria to evaluate mechanisms, and specific recommendations regarding selection of a decoupling mechanism.[3] RMI provides a

[3] RMI provides discussion of the issue of DSM and revenue erosion (RMI FSOP at p.24), identifies mechanisms to address DSM revenue erosion (RMI FSOP at pp. 24-26), provides criteria to evaluate mechanisms to address DSM revenue erosion (RMI FSOP at pp. 26–27 and a matrix at RMI FSOP Exhibit C at page 2), evaluates alternate mechanisms (RMI FSOP at pp. 27–34), discusses previous decoupling proposals in Hawaii and on the mainland (RMI FSOP at pp. 34-35), lists and discusses alternate possible components of decoupling mechanisms (RMI FSOP Exhibit B at pp. 14), and identifies tabular data including revenue components and energy costs by customer class (RMI Exhibit E revised 8/18/06).

detailed, fully developed decoupling mechanism proposal in RMI FSOP Exhibit B (pp. 2-14) and RMI's response to HECO/RMI-FSOP-IR-132 (revised 8/18/06).[4]

RMI's proposal applies only to those rate schedules with a high percentage of margins in their volumetric rates, schedules R and G. These two customers classes account for 99.8% of the fixed margins embedded in HECO's volumetric energy charges.[5] (RMI FSOP Exhibit E, Revised 8/19/2006, page 2) The proposed decoupling mechanism does not apply to rate schedules J, H, PT, PP, PS and F because these schedules are already essentially "decoupled" by way of the marginal block energy charges being close to HECO's marginal costs of energy production and delivery.

RMI holds that the instant docket was specifically identified by the Commission as the proper forum to hear and consider proposals for DSM financial recovery mechanisms such as RMI's decoupling proposal. RMI further holds that it has provided sound arguments and evidence supporting decoupling and has provided a sufficient foundation for a worthy decoupling proposal in this docket. RMI also acknowledges the novelty and complexity of issues regarding implementing a decoupling mechanism and certainly does not wish to encourage the Commission to embrace a substantial new ratemaking mechanism without sufficient consideration. RMI continues to argue for implementation of a decoupling mechanism for Hawaii's investor-owned utilities and reasserts here, by reference, its arguments and proposal

[4] Several aspects of the decoupling mechanism proposed in the RMI FSOP and RMI FSOP Exhibit B are elaborated in specific detail in RMI's response to HECO/RMI-FSOP-IR-132.

[5] The fixed margin is the difference between the volumetric energy charges (in the marginal block) and the marginal cost of producing and delivery energy for each rate class. For the R (residential) and G (small commercial customer) classes the fixed margins comprise 87.2% and 12.6% of the total fixed margin for all customer classes combined. The fixed margins and their derivation are documented in RMI FSOP Exhibit E, Revised 8/19/2006, page 2 based on HECO's response to RMI/HECO-IR-20: HECO's revised filings showing revenue at proposed rates in HECO's rate case application in Docket No. 04-0113.

made in its FSOP, exhibits and information request responses cited above for consideration in this docket and any continued proceedings.

Regarding the time that should be allowed for parties to present decoupling proposals RMI recommends a schedule that is realistic but that pushes the parties forward to start their efforts and investigations without substantial delay. At the panel hearings RMI was asked by the Moderator how much time it would "recommend the Commission grant the parties" to prepare decoupling proposals. RMI responded that a schedule of proceedings should be put together that would result in a decision and order within one year. There was some discussion by other parties asserting that RMI's proposed schedule was too fast and that it might take one year or more to come forth with initial decoupling proposals. The complexity of the issues and the Consumer Advocate's lack of resources to meet current work demands were cited as reasons for the longer periods of time required. RMI acknowledges that a schedule of proceedings that would result in a final decision and order within a year is an aggressive schedule for some of the parties but reminds the Commission that schedules always take longer than originally established. In any case, whatever time frame the Commission may determine, RMI suggests that at least some milestones be established within a period of a few months of the decision and order in this docket to ensure that the parties are diligent in starting their efforts and investigations and do not using extended periods of "required" time simply to put off addressing this matter.

(5) A positive, performance based shared savings utility incentives mechanism should be adopted for Hawaii's investor owned utilities to provide an earnings opportunity for utility DSM program implementation commensurate with an appropriate portion of the

earnings opportunities foregone by implementing DSM programs in lieu of ratebased supply-side investments. (re: Issue No. 5)

At the panel hearing there was some discussion of the basis for utility incentives in the context of accepted traditional utility regulatory practice. The concept put forth by RMI in this context was a positive incentive based on compensation to the utility for lost earnings opportunities resulting from expected DSM performance. RMI argues that the utility and third party administrator should be rewarded for reaching a threshold level of performance with incentives that are commensurate with but no greater than the shareholder earnings of the supply side ratebased investments that the portfolio of DSM programs displaces. At a fundamental level, utility management has powerful institutional prerogatives to achieve returns for shareholders. Demand side programs will be severely disadvantaged in terms of management resources and focus unless the programs offer profitable opportunities and are not solely a source of foregone earnings potential. RMI's proposed incentive places DSM on par with supply side measures in this respect. This approach is consistent with the principles regarding incentives enunciated in the Commission's IRP Framework and in the Hawaii RPS statute.

In addition to considering the justification for incentives in the context of traditional regulatory theory, as was discussed at some length at the panel hearings, RMI suggests that the important **practical** regulatory advantages of a performance based shared savings mechanism should not be overlooked. A well designed utility incentive mechanism can serve several valuable practical regulatory functions.

First, a performance based shared savings mechanism is an effective method to control utility DSM expenditures to the "most effective minimum." A shared savings mechanism

rewards the utility financially for increasing program penetration and minimizing program costs. Without a shared savings utility incentive mechanism, what incentive does the utility have to control DSM program expenditures? Goals are being considered to encourage the utilities to succeed in attaining aggressive shares of maximum achievable market potential but what mechanisms are in place to encourage the utilities to do this in the most cost effective manner? How are costs being regulated and minimized? In this docket, for example, it is doubtful that the Commission or any of the parties has sufficiently examined the proposed DSM program budgets on a line item basis to determine whether the costs identified are all prudent, necessary and properly estimated. If the Commission approves the proposed programs and budgets and offers imperatives, incentives, or penalties (either explicit of implicit) to HECO to aggressively attain the DSM penetration goals, what would prevent the Company from spending as much of the approved budget as possible to succeed at attaining the goals? A performance based shared savings mechanism would provide a reassuring incentive for the utility to control costs in attaining its goals in order to maximize its utility incentive. Although the expenditure of ratepayer funds for utility incentives clearly registers as a bright red expense when considering projected DSM budgets, this expenditure may actually result in substantial ultimate savings if the performance based utility incentive is more effective than the Commission and Consumer Advocate can otherwise be in monitoring and regulating expenditures rigorously enough to control utility expenditures to the most effective minimum.

Second, implementing a shared savings mechanism based on ex post evaluation of utility performance would allow the Commission to permit substantial flexibility in program implementation without sacrificing accountability. In its application in this docket, for example,

HECO has requested substantial flexibility in several aspects of program budget adjustments and program implementation. The added flexibility could increase program effectiveness and cost effectiveness by allowing the utilities to respond to market changes with reduced regulatory delays. The requested flexibility is a potentially beneficial allowance but how can the Commission allow the requested flexibility without sacrificing regulatory accountability? Additional flexibility can be provided to the utility with accountability if sufficient incentives exist to the utility that would depend on ex post evaluation of utility performance. In the extreme, (which is suggested here only as an example) if the ex poste evaluation is rigorous and thorough enough in scope and evaluates all aspects of the utility's DSM performance and if the incentives (and/or penalties) are substantial enough and depend upon the ex poste evaluation, the utility could be allowed to implement its DSM programs and spend approved funds however it decides without rigorous ex ante review of program details since the utility would be highly motivated to meet the objectives of the ultimate performance evaluation. More realistically, the Commission should feel more comfortable allowing flexibility to the utility to the extent that the utility is motivated to act responsibly with its allowed flexibility. A shared savings mechanism that relies on ex poste evaluation provides some appropriate motivation and incentive. What motivation exists without such a mechanism?

In short, RMI argues that, in addition to providing the utility with a fair earnings opportunity, a positive, performance based utility incentive provides several important practical regulatory benefits by aligning the incentives to the utility with the DSM program objectives and ultimately with the interests of the utility customers.

RMI proposes a specific utility incentives mechanism for consideration in this docket in its FSOP Exhibit B at pages 14-19. RMI provides a discussion of DSM incentives mechanisms generally (RMI FSOP, pages 21-24), presents arguments for a positive, performance based shared savings utility incentive mechanism (RMI FSOP at pages 35–39), and provides a comparison of the merits of alternative utility incentives mechanisms (RMI FSOP Exhibit C, page 3). Further details regarding RMI's proposed mechanism are provided in RMI's responses to HECO/RMI-IR-117, 123, and 140-150. RMI incorporates the material cited above in this brief by reference.

RMI recommends that the Commission adopt HECO's most recent revised incentive proposal identified at the panel hearings[6] but with one modification. HECO's most recent proposal is a shared savings mechanism that provides an incentive of 5% of the net demand side program benefits upon achieving 80% of the program goal with a cap of $4.0 million (with no separate additional recovery of lost margins). This proposal should be modified to provide a further limit on the incentive level to no more than the utility earnings opportunities foregone by implementing DSM programs in lieu of supply-side ratebased investments. RMI may further clarify its recommendation on this matter based on HECO's characterization of its final utility incentives proposal in the Opening Briefs.

(6) HECO's periodic reports documenting DSM program costs, accomplishments and surcharge recovery should be reviewed by an independent contractor selected by and reporting to the Commission and funded as a DSM expense. (re: Panel Hearings Issues)

[6] RMI may further clarify its reference to HECO's most recent incentives proposal based on the characterization of the proposal in the Opening Briefs.

The reports filed annually by each utility documenting DSM program expenditures and accomplishments and DSM surcharge collections are voluminous. These reports are not presently being sufficiently reviewed by Hawaii's regulators. In course of preparing its case in this docket RMI examined HECO's May 31, 2005 Accomplishments and Surcharge Report attempting to determine information necessary to calculate alternative shareholder incentives mechanisms. In the course of deciphering this terse document RMI discovered several matters of substantial concern including a misapplication of HECO's lost margins mechanism that resulted in over-collection of lost margins totaling between ten million and forty million dollars since HECO's last general rate case.[7] This discrepancy should clearly have been discovered by a normal and careful critical review of the calculations of shareholder incentives and lost margins which are documented for regulatory purposes in this annual filing. It is clear to RMI that these annual filings are not being sufficiently reviewed.

In the discussion at the panel hearing regarding independent review of the annual filings, the need to duplicate the work of the evaluators retained by the utilities was questioned. Why, it was asked, should an independent evaluator be retained to review the annual reports that are filed if the annual reports reflect the results of the existing evaluators. RMI points out here that the vast majority of the annual reports are prepared by the utility. The results of the evaluations are incorporated but most of the bulk of the reports is a utility work product. Most importantly, the calculations of shareholder incentives, lost margins and surcharge reconciliations are prepared by the utility without further independent review. This is a shortcoming that RMI recommends

[7] This matter is discussed in the RMI FSOP at pages 28-28 and at the panel hearings (Tr. at 821-833). This matter is further elaborated and the amount of over-collection is quantified in detail in RMI's response to HECO/RMI-FSOP-IR-111. HECO admitted to the over-collection during the panel hearings (Tr. at 830-831) but not with RMI's quantification of the amount of over-collection.

should be addressed. Unless the Commission and/or Consumer Advocate are able and willing to more effectively review the annual reports, a qualified independent contractor should be retained for this purpose.

RMI notes that if a performance based utility incentives mechanism is adopted the evaluation of utility performance and the calculation of the utility incentives should be performed by an independent contractor. This scope of work would be separate and not duplicative of the work of the program evaluators retained for other specific purposes and would be limited to determination of the utility incentives based on the criteria specified by the Commission.

(7) Goals for attainment of energy (kWh) and capacity (kW) savings should be established for each of Hawaii's energy utilities. (re: Issue No. 1)

RMI's position remains consistent with the arguments and positions on this issue expressed in its FSOP (RMI FSOP, pp.5-11) which are incorporated here by reference.

Summarized concisely, the Commission should:

- Set clear goals for energy efficiency and demand-side management to be met by ratepayer funded DSM programs.
    - Set DSM goals for each utility service territory based on findings in the utility's IRP process.[8]

[8] IRP is an ideal venue in which to determine objectives and goals for DSM resources in the context of each utility system. A central purpose of the IRP process is the determination of the optimum resource mix for each utility based on rigorous examination and analysis applied to a broad set of objectives. The IRP process encompasses a characterization and direct comparison of all possible resources, including both supply and DSM resources. If meaningfully executed and applied the IRP process is a good venue for determining which resources will best meet the needs of the utility and its customers. (RMI FSOP, pp.7-8)

- The goals should be set collectively for the utility service territory and individually for the utility and third party DSM administrators.
- In this docket the Commission should set a goal for HECO of 0.6% of gross electricity sales per year to be met by utility ratepayer funded DSM programs.[9]

- Excuse the utility and/or fund administrator or revise these goals if it is determined in the utility IRP process or by other studies commissioned by the Commission that the goals cannot be met cost effectively.

DSM goals should be set taking into consideration the larger context of goals established as renewable portfolio standards (RPS). The RPS are also to be set and administered by the Commission, perhaps also incorporating the context and findings of the IRP processes for each utility. RMI maintains that the energy efficiency goals for each utility service territory should be independent from but complimentary to the legislated renewable portfolio standards (RPS). In short, RMI recommends that, in a future rulemaking, it should be determined that the RPS goal of 20% be met entirely with renewables as authorized by Act 162 (SLH 2006). If we achieve the combination of both goals, we will actually lower Hawaii's crippling dependence on foreign oil. In this regard RMI believes the Commission should require (in the context of future proceedings) that the RPS goal of 20% by the year 2020 be met entirely by renewable energy production resources.[10]

[9] HECO, in its recent IRP filing, is proposing an effective reduction of 0.6 percent of gross sales. (RMI FSOP, p.10).

B. HECO'S PROPOSED DSM PROGRAM ISSUES

(8) The Commission could consider issuing an interim order addressing HECO's specific application (HECO's Proposed DSM Program Issues # 6 through #9) if the Commission resolves these issues prior to resolving the broad policy issues in this docket.

The issues pertaining to HECO's specific application can possibly be resolved more finitely and quickly than the broad policy issues in this docket. Prompt resolution of the specific application issues could be facilitated by establishing several conditions regarding the scope of approval identified below. Since prompt resolution of approval of HECO's proposed DSM programs may be more pressing, the Commission could consider issuing an interim order resolving HECO's specific application issues prior to resolution of the broad policy issues.

(9) HECO's specific lost margins and utility incentives proposals should be rejected. (re: Issue No. 8)

HECO no longer proposes a lost margins mechanism. There is no proposal for a lost margins mechanism that is ripe for approval in this docket.

The original utility incentives mechanism proposed by HECO in its application for approval of its DSM programs and program financial recovery mechanisms (in HECO T-10 and HECO T-12) has been abandoned in favor of several later proposals. The Commission should reject both of HECO's initial proposals as they pertain to HECO's specific application in this docket. Any other mechanisms to address revenue erosion or shareholder incentives should be considered in the context of the Statewide Energy Policy issues and should be applied to all of Hawaii's investor-owned energy utilities uniformly as a matter of policy.

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[10] Absent this approach and allowing DSM resources to meet the RPS, Hawaii's dependence on foreign oil will actually increase from 76.5% to 78.5% by the year 2015. (RMI FSOP, p.7; RMI Response to HECO/RMI-FSOP-

RMI incorporates here, by reference, its arguments against HECO's specific lost margins and original utility incentives mechanisms in its FSOP at pages 47-50.

As noted above, RMI recommends as a statewide energy policy issue that the Commission adopt HECO's most recent revised incentive proposal with one modification and as possibly further clarified based on characterization of HECO's final proposal in the Opening Briefs.

(10) HECO's proposal to recover DSM expenditures through base rates should be rejected. (re: Issue No. 7)

RMI explains why DSM expenditures should be recovered through a surcharge rather than through base rates in the discussion of this matter in the Statewide Energy Policy Issues above. (See discussion starting at p. 9 above and RMI FSOP pp. 17-20.) HECO's proposal to recover DSM expenditures primarily through base rates should be rejected.

Regardless of how utility-incurred DSM program costs are ultimately to be recovered, the costs of HECO's pending proposed programs should be recovered through a surcharge mechanism at least until HECO's next general rate case.

(11) HECO's proposed energy efficiency program portfolio should be given immediate but only conditional approval. (re: Issue No. 9)

Based on the closing arguments at the panel hearings, there appears to be no outstanding opposition to the approval of HECO's proposed programs. There is general acknowledgement that the programs are beneficial and no argument that the programs would not be cost effective.

Nevertheless, there are several substantial assertions of shortcomings in the evidence supporting the proposed programs that need to be addressed. HECO's analyses supporting the

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cost effectiveness of its DSM programs are deficient. The benefit-to-cost ratios of some of HECO's proposed programs are less than one, indicating that these programs are not cost effective according to HECO's analysis. Approval of HECO's proposed programs is requested in this docket without the intended prior review and approval in the context of the IRP process.

How can the Commission approve these apparently beneficial programs given the shortcomings in HECO's application? How can the Commission ensure on one hand that sound regulatory standards are maintained in the review and approval of DSM programs and on the other that, in the instant case, perfection does not become an enemy of the best course of action? In this context, RMI suggests the following framework for conditional approval of the energy efficiency programs HECO requests in this docket.

(a) HECO should be given permission to proceed with its proposed programs but explicitly subject to ongoing review by the Commission (i) based on annual reports of program accomplishments, costs and cost recovery and (ii) based on any pertinent findings from review of HECO's pending IRP application.

Approval of HECO's proposed energy efficiency programs should be contingent upon further review. Deficiencies in HECO's supporting analyses, a lack of rigorous scrutiny in this docket, absence of prior review and approval in an approved IRP and several unresolved policy questions preclude any irrefutable findings that each of the proposed programs will be cost effective and prudent. All of these aspects seem to be optimistically overlooked or tolerated by the parties based on conclusions that, despite these shortcomings, the proposed programs have merit and should be approved. RMI addresses each of these aspects below.

The cost effectiveness of the programs should be actively reviewed based on the ongoing actual expenditures and accomplishments. This review could be based on the annual reports that document actual expenditures and program impacts. If the Consumer Advocate and/or the Commission do not have sufficient resources to conduct a review of the cost effectiveness of the programs based on the annual reports, a qualified independent contractor could be retained to assist with the review.

The consistency of the programs with HECO's IRP and overall system planning objectives should be reviewed in the context of HECO IRP proceedings. Approval of HECO's programs in the instant docket should be contingent upon later findings in the analyses, review and approval of HECO's IRP.

(b) Cost recovery for implementation of HECO's programs should be implemented as a surcharge that is explicitly subject to ex poste reconciliation to provide for recovery of actual, reasonably incurred and approved program expenditures.

Cost recovery should be implemented by means of a surcharge. Arguments for a surcharge rather than base rate recovery are stated above. Clearly in the immediate future prior to HECO's next rate case the only practical method for timely recovery of approved DSM expenditures would be through a surcharge.

Recovery through a surcharge allows and should be specified to incorporate ex poste adjustment reconciliation of projected versus actual DSM expenditures and projected versus actual surcharge recovery. This is consistent with HECO's existing surcharge recovery mechanism.

If the Commission retains doubts about the prudence of HECO's future DSM expenditures for the programs approved in this docket HECO's recovery of DSM expenditures could be made subject to prudence review by the Commission based on review of the annual reports and implemented as part of the reconciliation mechanism.

(c) Unless the Commission intends to promptly identify a third party program administrator for this purpose, HECO should be directed to promptly develop two additional DSM programs including an affordable housing residential new construction program and a "Pay-As-You-Save" low income solar water heating and PV program.

HECO's portfolio of energy efficiency programs relies predominantly on rebates as the primary delivery mechanism. Many low income customers cannot effectively participate in rebate programs because capital investments are required that are beyond the financial means of these customers. Providing programs that are available to the broadest spectrum of utility customers is important both for reasons of fairness and for optimum attainment of market potential. Low income customers pay for the expenses of the DSM programs in their utility bills and should have reasonable access to DSM program opportunities. Low income customers also comprise a substantial portion of each utility's DSM "potential."

RMI believes that the Commission should require either HECO or a third party administrator to create a program specifically for developers of affordable housing that contains the same provisions as the RNC but also explicitly provides for a revolving loan package to pay for the remaining incremental costs of new efficiency measures not covered by incentives. These incremental costs would then be paid back from the customer's bill savings over time. In essence, this finances the efficiency measures for low-income customers, and eliminates the

disincentive that affordable housing developers currently have to any measures that increase the price of the house, even if the measures are cost effective for the homeowner.

Under Act 96, the state's utilities are required to create a Pay-As-You Save (PAYS) pilot program to provide solar water heating to low-income customers where the cost of the measure is recovered over time in the energy bill as a portion of the savings.

The PAYS program is designed to be a market-based approach that can be self-funding as measures are paid back through the savings created by efficient technology. A utility or third party calculates the cost savings of the selected measures eligible for PAYS and calculates an appropriate payment stream for the customer. RMI recommends that the Commission use this docket to implement Act 96 and extend the PAYS program to *include solar photovoltaic* as well, in combination with the affordable housing residential new construction program discussed above.

(12) The Commission should make an interim finding, subject to ongoing review, that HECO's proposed portfolio of energy efficiency programs is cost-effective based on a preponderance of sufficient albeit imperfect evidence. (re: Issues Nos. 6 and 9)

Despite several shortcomings noted below, there is a preponderance of evidence that HECO's proposed portfolio of energy efficiency programs is cost-effective[11] and that the portfolio of programs will prove to be consistent with HECO's IRP objectives. (Tr. at 1035, l. 10-23, Freedman). There is no evidence that HECO's energy efficiency program portfolio is not cost effective. There have been no arguments made in the proceeding (so far) that any of HECO's individual programs should be rejected because they are not cost effective.

One important shortcoming of HECO's analyses supporting the cost-effectiveness of its programs is that its estimates of the cost effectiveness of each individual program are not correct or defensible.[12] HECO's analyses support only a finding that the portfolio of programs, as a whole, is cost effective. HECO may present additional analysis to support findings regarding the cost effectiveness of each individual program[13] but this analysis is not available for review by RMI or any of the parties at this time.

The Commission should find, based on the preponderance of evidence, that HECO's portfolio of programs is cost effective. This finding should be limited to a finding regarding the portfolio of energy efficiency programs and not to a finding that all of the programs are cost effective. As explained immediately below, findings regarding the cost-effectiveness of the programs should not include any endorsement of the specific methods or analyses used for purposes of application to future proceedings.

(a) The Commission should explicitly note that neither the methods nor the specific implementation of analyses used by HECO to establish the cost effectiveness of its programs are approved or rejected for purposes of application to later proceedings.

The Commission's findings regarding the cost effectiveness of HECO's energy efficiency programs in this docket should be limited in scope to address only the question of approval of the programs in this docket. The Commission should not endorse or approve (or

[11] RMI supports HECO's analysis of the cost effectiveness of its portfolio of energy efficiency programs as characterized by RMI in RMI Hearings Exhibit B, indicating that the total resource cost test benefit-to-cost ratio of the portfolio of energy efficiency programs is 1.22. (Tr. at 465 line 2, to 466 line 18)

[12] HECO's analyses are not sufficient to accurately determine the cost effectiveness of each of its DSM programs due to problems with allocation of gross portfolio lifetime benefits to the individual programs. (Tr. at 466, l. 4-9, Freedman)

explicitly reject) the supporting methods and implementation of the analyses for purposes of application to later proceedings.

First, HECO's specific implementation of the analyses used to support the cost effectiveness of its programs was not exemplary. Several problems were identified during the course of the proceeding resulting in several revisions. As explained above, one principal shortcoming is that HECO's analyses fail to accurately determine the cost effectiveness of each of the individual energy efficiency programs proposed in its application.

Second, the errors, corrections and revisions in HECO's analyses are not sufficiently documented in the record and have not been sufficiently examined to warrant findings approving the methods for application to future proceedings.

Third, the abbreviated schedule of proceedings[14] and panel hearings format in this docket did not allow for an exhaustive review of HECO's methods and analyses. Several aspects of HECO's analyses remain unexamined. For example, RMI was not able to sufficiently examine HECO's innovative but questionable method of incorporating a "Virtual DG" unit in its differential revenue requirements analysis used to determine the gross benefits of its DSM programs. This method is not consistent with HECO's prior methods[15] and has not been examined in the instant docket sufficiently to warrant findings approving or rejecting the method for purposes of future proceedings.

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[13] HECO indicated that it would prepare and file additional analyses to address this matter at the panel hearings. (Tr. at 473 line 9, to 475 line 24).

[14] For several parties, including RMI, the first and only opportunity to present evidence was the filing of the FSOP. This filing preceded any opportunity for formal discovery and coincided with the initial and substantive filings by the other parties. The only further opportunity to examine or present evidence was at the panel hearings.

[15] In prior analyses HECO used a different "ERI" method. (Docket No. 7257, Tr. at 545-546, King; and in the same docket: HECO-RT-3B, pp. 13-15)

C. PROMISES TO PROVIDE FURTHER INFORMATION IN POST-HEARING BRIEFS

(13) HECO promised to collaborate with RMI and submit an explanation of the methods to allocate the lifetime benefits of the energy efficiency program portfolio to the individual programs.

During the panel hearings RMI asserted several deficiencies with HECO's analyses establishing the cost effectiveness of HECO's proposed energy efficiency programs including issues regarding the allocation of the gross benefits of the proposed energy efficiency program portfolio to the individual programs. HECO agreed to submit to the Commission an explanation of its allocation method with an explanation of the differences in position with Mr. Freedman of RMI. (Tr. at 473, l. 9-18) At the request of the Moderator HECO agreed to collaborate with Mr. Freedman so that the agreement or disagreement would be stated in the most precise and clear terms. (Tr. at 473, l. 19-25) Mr. Freedman agreed that that would be fine. HECO also volunteered to perform additional calculations to address the issues raised by Mr. Freedman in conjunction with the collaborative document. (Tr. at 474, l. 19-24)

In early October Mr. Freedman contacted HECO to enquire about the status of this matter and was informed that HECO would be in touch with Mr. Freedman at a later date. Mr. Freedman was later informed by HECO that HECO would probably not be collaborating on this document but would provide its submission to the Commission in its Opening Brief and would provide its submission to Mr. Freedman for review when it was available if this were before filing the Opening Briefs. HECO invited RMI to comment on HECO's submission in the Reply Brief. Mr. Freedman has not received further information on this matter from HECO.

Mr. Freedman remains willing to provide collaboration, clarification or assistance in this matter if provided the opportunity but has nothing more to report on this matter at this time.

(14) RMI promised to get together with HECO and the Consumer Advocate to resolve what needs to occur to minimize gaming issues regarding base rate versus surcharge recovery of DSM expenses.

During the panel hearings the Moderator asked RMI for comments regarding the gaming potential associated with surcharge recovery identified in an entry in the evaluation matrix provided by RMI in RMI Exhibit C. After some discussion of this matter the Moderator suggested that RMI get together with HECO and the Consumer Advocate to pin down what needs to happen to minimize the potential for gaming associated with surcharge and base rate recovery of DSM expenses. Although RMI tried to defer to the other parties on this matter the Moderator left this initiative with RMI and RMI agreed to oblige. (Tr. at 802-803) Neither HECO nor the Consumer Advocate agreed or disagreed with this proposition on the record at the panel hearings.

RMI has contacted both HECO and the Consumer Advocate several times regarding this matter but has not been able to arrange any discussion or meeting. RMI remains willing to provide assistance in this matter but has nothing substantive to report at the time of this brief.

(15) RMI promised to get together with HECO to propose a common approach or make a precise statement of agreement or disagreement regarding establishing marginal costs for determination of lost margins calculation.

After some discussion during the panel hearings regarding possible methods to establish marginal costs for purposes of implementing a lost margins mechanism the Moderator suggested

that RMI might get together with HECO before briefs were due to propose a common approach or a statement of the status of agreement regarding an approach to quantify marginal energy costs. RMI and HECO agreed. (Tr. at 832, l. 4-13) RMI contacted HECO several times and offered to meet to discuss this matter. No discussions or meetings have yet been arranged. RMI suggests here that, because there is no longer a lost margins mechanism being proposed by any party in this docket, this matter may be moot and further discussion may be unnecessary.

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of	)	
	)	
HAWAIIAN ELECTRIC COMPANY, INC.	)	Docket No. 05-0069
	)	
For Approval and/or Modification of	)	
Demand-Side and Load Management	)	
Programs and Recovery of Program	)	
Costs and DSM Utility Incentives.	)	
	)	

IDENTIFICATION, EXPERIENCE AND QUALIFICATIONS OF WITNESSES

RMI's witnesses for the panel hearing in this docket were E.Kyle Datta and Carl Freedman. Statements of experience and qualifications for RMI's witnesses were attached to RMI's Final Statement of Position as FSOP Exhibit F and FSOP Exhibit G. These exhibits are provided again with this brief as requested by the Commission at the close of the Panel Hearings.

E. KYLE DATTA

Managing Director
Rocky Mountain Institute

E. Kyle Datta is the Managing Director of Research and Consulting at the Rocky Mountain Institute. Mr Datta is a former Vice President in Booz, Allen & Hamilton At Booz Allen & Hamilton, Mr. Datta was managing Partner of the firm's energy practice in Singapore, leader of the US Utility practice, and served on the firm's People Board. During his twelve years at Booz Allen & Hamilton, Mr. Datta worked with senior energy clients on strategy and operations in the U.S, Europe, Japan, Australia, Asia and Latin America.

Mr. Datta's functional expertise includes corporate strategy, sustainable development, market access strategy, pricing strategy, environmental strategy, operational performance improvement and supply chain management. He has directed assignments across the energy value chain, including oil, gas, power, chemicals and renewable energy. Mr. Datta's publications include: *"Risky Business: The Business and Customer's Perspective on U.S. Electricity Deregulation"* and co-author of *"Small is Profitable"*.

Electric Utility Strategic Transformation

Distributed Resources Strategy: For Invensys, a multinational energy management firm, Mr. Datta lead the RMI team in developing a market entry strategy for an innovative residential demand response technology. RMI's efforts including economic analysis of the full economic value of demand response for utilities in PJM, California, and WSCC. RMI's efforts have resulted in adoption of the technology by utilities in Pennsylvania and Nevada.

Distributed Generation Strategy: For a large US utility and for a multinational electrical equipment firm, Mr. Datta helped the clients define new business models for distributed generation. This effort resulted in the successful deployment on distributed generation leasing business models in the US and Europe.

Business Model Strategy: For a large US utility, Mr. Datta defined new business models for the utility sector. This effort encompassed both existing and new to industry business models, including e-business model, convergence plays, integrated asset trading plays. This effort lead the client to re-examine its existing strategy and invest in options to execute the new business models in the future.

Value Creation and Transformation of the Indonesian Domestic Energy Sector: For the Ministry for Empowerment of State Run Enterprises in Indonesia, Mr. Datta lead the recent effort to blueprint the path to transform the domestic

energy sector and the role for the MESE. Booz•Allen identified a US$15 Billion value creation potential in restoring PLN to financial profitability while simultaneously developing Indonesia's domestic gas sector. This comprehensive review consider regulatory enablers, pricing, organizational models, sector governance, and key value levers.

Generation Company Strategy and Transformation: For an the generation subsidiary of an Asian State Run Utility, Mr. Datta lead a two year effort to transform the company from a vertically integrated division into a generation company subsidiary capable of achieving world class performance. The objective of the transformation was to prepare the generation division for privatization and deregulation. The effort every aspect of transformation, including the overall strategy for unbundling, privatization, and competition, determining the optimal number and composition of gencos, organization design of the major genco and headquarters units, near term performance improvement initiatives at individual power plants, including operations, reliability centered maintenance, and procurement. The Booz•Allen lead team followed through to implementation, including human resource strategy and migration planning. This effort included over 30 client staff and 10 Booz•Allen consultants, and was the largest restructuring effort undertaken by the generation company in its history. The transformation resulted in a sustainable step change in performance effectively doubling return on capital employed.

Utility 2001- Creating the Distribution Company of the Future: For an Australia distribution company, Mr. Datta was part of the senior team that developed a comprehensive strategy for a distribution company to meet the challenges of the deregulation and competition. The strategic review evaluated all potential plays, from merger/acquisition to powerline technologies, multi-utility plays, financial services, and energy service companies. The Booz•Allen team developed the new organization structure to unbundle into wires and retail, defined the acquisition strategy that successfully resulted in the acquisition of a gas utility, and developed new business lines for the retail business.

Competitive Strategy Under Deregulation: Mr. Datta recently lead an engagement to support a major energy company in their global strategy for competing in the rapidly changing electricity industry. This included evaluation of generation entry and alliances in the U.S. and Australia, near term performance improvement in existing generation facilities, and development of core capabilities necessary for success. The effort resulted in forging a new strategic alliance between the client and a major power developer which has resulted in significant cost reduction and increased market revenues through development of two new merchant power projects.

Generation/System Strategic Planning: For a mid-sized US utility, Mr. Datta developed their least cost integrated plan to lower total costs to the utilities consumers and improve the utilities competitive position. This effort involved

evaluating the relative cost effectiveness of existing fossil and nuclear generation vs other demand side and supply side options, and recommending a course of action that was ultimately approved by the Board of Directors and regulators.

Utility Cost Structure Analysis: Mr. Datta has lead several analyses of utility cost structure to identify opportunities to improve operational efficiencies and reduce overhead costs. These have also included evaluations of merger synergies in the case of US utilities.

Utility Regulatory Policy

Regulatory and Litigation Support: For the Connecticut DPUC, Mr. Datta evaluated the legal and financial impacts of the NU-PSNH merger. Mr. Datta focused on financial analyses of the potential merger synergies, and on the adverse impacts of conditions imposed on the merger by the FERC, and SEC. The analysis include evaluation of the risks and benefits posed by the merger and the influence on electric rates. Financial analyses included determination of impact of merger on utility risk and cost of capital.

Mr. Datta advised the DPUC on conditions to place on the merger, and evaluated the economic tradeoffs of proposed conditions. Mr. Datta also evaluated the legal implications of SEC regulation of the merged company and the impact of conditions placed on the merger by other States.

Mr. Datta determined regulatory options for least cost planning in gas utilities for a state public utility commission. Regulatory assessment includes options for gas pricing, analysis of gas supply portfolios, and valuation of gas conservation programs

Incentive Regulation : In two assignments for the Connecticut DPUC, Mr. Datta developed incentive regulations for electric utility off system sales, and gas conservation programs. The electric off -systems sales incentive established shared the savings from off system sales of NU and its new subsidiary PSNH based on each utility contribution to surplus capacity and provide the parent utility with a portion of the off-system sale revenues. The conservation incentive provided gas utilities with a share of total system savings from gas conservation programs.

For the Connecticut DPUC, Mr. Datta evaluated the economic tradeoffs between different rate structures and conservation incentive programs. Analysis included developing estimates of social welfare benefits among rate classes and determining the optimal rate structure and level of conservation programs.

Transmission Regulation and Pricing: For the Connecticut Department of Public Utility Commission, Mr. Datta performed antitrust analysis of the New England transmission system, and managed the legal staff advocated the State's position

on transmission policy to the Federal Energy Regulatory Commission in the Northeast Utilities-PSNH merger. Specifically, Mr. Datta worked with the Chairman of the DPUC to formulate transmission policy that balanced economic efficiency and equity principles, and assisted in writing FERC testimony and briefs in support of protection of native load ratepayers. In addition, Mr. Datta worked extensively on assessing the impacts of different pricing and access proposals on the Connecticut ratepayers, including assessment of off-system sales, firm wheeling transactions, and non-firm energy and wheeling transactions.

In addition, Mr. Datta evaluated transmission pricing proposals, and worked on formulating the State's position for opportunity cost pricing that was adopted by the FERC in its landmark decision on the NU-PSNH merger (Order No. 364) and is currently the leading precedent in the U.S. Mr. Datta also worked on evaluating and developing transmission pricing and access proposals for the negotiations for a Regional Transmission Agreement.

Refinery Performance Improvement

Refinery Process Improvement: For a global major oil company, Mr. Datta lead worldwide refinery maintenance improvement program. This effort targeted a 20-30% reduction in cash operating costs in the client's refinery system, and focused on plant operations, maintenance and turnaround processes. The joint Booz·Allen-client team focused on two U.S. refineries as pilots for the redesigning plant processes. The work included benchmarking of major performance gaps with best practice refineries, reengineering of core refining processes, and development of implementation plans. These pilots were codified into refinery best practices and rolled out to European and Asia/Pacific refineries. In total, Mr. Datta directly lead the implementation in five of the clients refineries worldwide

Refinery Strategy: For a refining joint venture in Japan, Mr. Datta lead an engagement to determine the near term and long term strategy for the JV, given the deregulation of the Japanese downstream sector and the concurrent collapse in margins. This effort included evaluation of diversification alternatives into power, merger and alliance candidates, and direct marketing of refined products

Downstream Retail Gasoline Strategy

Regional Retail Strategy: For a major international petroleum company, Mr. Datta lead a regional effort to determine the cross market format opportunities within the Asia Pacific Japan region. This effort evaluated market evolution and identifies key retail alliances, format opportunities, and cross cutting performance improvement initiatives to transform the client's retail position.

Retail Strategy in Japan: For the Japanese affiliate of a major oil company, Mr. Datta lead a series of efforts to define the client's marketing strategy. This include segmentation of the clients agents, evaluation of pricing and promotion programs, competitor analysis, and detailed assessment of district level actions necessary to achieve critical market share.

Retail Strategy in Thailand: For Thailand's state run oil company, Mr. Datta lead of comprehensive strategic transformation of the retail business, including formats, alliance strategy, brand positioning, network strategy, channel management, and cost reduction. The client in currently implementing the recommendations.

Retail Fuels Strategy: For a major petroleum company, Mr. Datta lead the evaluation of the client's U.S. contract dealer and distributor programs. The effort involved developing the process for assessing market profitability, evaluating competitor dealer margins, determining asset disposition strategy, determining dealer brand preferences and developing sales force strategies.

During the course of the engagement, Mr. Datta's team performed an economic analysis of each of the client's contract dealer and distributor arrangements, and directly interviewed over 100 dealers or distributors. The team designed innovative programs to improve the value of the client's portfolio through maximizing the total value of the brand, and divesting of under-performing assets. As a result, the client was able to achieve performance improvement of over $300 MM.

Retail Non Fuels Strategy: For a major petroleum company in Japan, Mr. Datta lead an engagement which identified the potential value the client's retail site network, and screen retail alliance partners in preparation for negotiations. This included screening of alternative retail formats

Reengineering of Retail Marketing Services For a major U.S. petroleum company, Mr. Datta lead the reengineering of the client's business support services to streamline overhead costs and improve sales force effectiveness.

Strategic Sourcing

Global Strategic Sourcing: Mr. Datta is recently managed a global strategic sourcing effort for a major international oil company. The effort has targeted over $700 MM in savings over a three year period. The assignments involved over 20 Booz • Allen staff and over 50 client staff. Mr. Datta is co-lead for overall project coordination and has direct responsibility for energy sourcing, chemicals sourcing, and Asia-Pacific implementation of sourcing strategies.

This effort has lead to innovative strategies for commodity sourcing and the development of supplier alliances. The project is currently its eighteenth month and to date, over $200 MM of direct savings have been achieved.

Global Energy Sourcing: For a major internaional oil company, Mr. Datta lead a global review of over $1BN in gas and power external spend in the US, Europe and Australia. The review identified over $100MM in near term savings opportunities through energy efficiency, procurement, renewable energy, and trading plays. The team also recommended organizational models and business processes to manage the spend going forward. The client is accepted the recommendations, and hired Booz Allen to support the implementation.

Global Power Sourcing: For a major US oil company, Mr. Datta lead a global review of over $800MM in external power spend in the US, Europe, and APJ. The review identified over $200MM in value creation from merchant cogeneration, energy efficiency and procurement plays. The team evaluated new energy suppliers and merchant cogeneration offers at 4 major facilities in the US, Australia and Japan.

Organizational Restructuring and Transformation

Restructuring of Global International Oil Company: Mr. Datta managed an extensive eighteen month reengineering effort of worldwide staff processes for a major international petroleum company. The effort focused on restructuring over 15,000 staff in support services into a shared service. Mr. Datta played a central role in designing the approach and integrating staff functions into a shared service organization. The assignment involved over 55 Booz, Allen staff and 200 client staff. During the course of this assignment, Mr. Datta worked directly with the senior client management team in overseeing and directing the engagement.

The project identified over $800 MM in worldwide savings across 11 staff processes. Mr. Datta was significantly involved in the project from its inception through implementation. His responsibilities included managing the benchmark analysis, determining the opportunity, designing the approach for evaluating staff services, developing the new organization structure and "software", and leading several teams in business process redesign.

Restructuring of State Run Oil Company: For a Middle Eastern OPEC State Owned Oil company, Mr. Datta lead the effort to define their corporate holding company and business unit structure. This effort resulted in a new corporate core, development of sector groups and business units, and redesigning the critical linking processes in planning, budgeting, human resources and capital.

Restructuring of State Run Fertilizer Sector in Indonesia: For an Indonesia's State Run Fertilizer Holding company, Mr. Datta is leading the strategy and

reorganization or the holding company and its subsidiaries. This objective of this engagement is to chart a new future for the fertilizer sector, determine near term pricing and competitive strategy, and redefine the role of the holding company and its subsidiaries.

Utility Shared Services: In a series of assignments for a major US utility, Mr. Datta lead the development of the governance structure and management processes for the newly formed shared services group.

Privatization

Privatization Strategy for State Owned Oil Company: For a major state owned oil company in the Middle East, Mr. Datta lead the development of their privatization strategy. This included determination of core and non core business units, and defining the privatization strategy and approach for non-core business units. This included performance improvement strategies to enhance the value of each business, the appropriate bundling of the businesses, new commercial arrangements between the privatized units and the remaining core businesses, and the human resource strategy for the privatized businesses. The privatization review included petrochemicals, fertilizers, shipping assets, and non-core social services.

Chemicals Strategy in Preparation for Privatization: For the chemicals subsidiary of a state owned Asia oil company, Mr. Datta lead the development of their petrochemicals strategy and performance improvement plan. This effort included a complete industry review, evaluation of strategic options and alliance partners, and review of operating and cost improvement initiatives. These reviews were forged into a performance improvement action plan to dramatically improve the value of the company prior to privatization.

Privatization Strategy for Power Generation: For the state run utility in Asia, Mr. Datta lead their transformation program to become competitive as a private generation company. This included development of asset divestment, acquisition, and alliance strategies as well as determination of bundling strategy for generation assets to increase their value.

Preparing the Fertilizer Sector for Privatization: For a Indonesian Fertilizer company, Mr Datta lead the effort to prepare the company for privatization. The effort entails both profit and organizational performance improvement. This included performance improvement strategies to enhance the value of the business, separation of non-core assets, new commercial arrangements between the privatized units and the holding company, and reoganization.

Market Entry Strategy for Environmental Technologies

Renewable Market Entry: In two separate studies, Mr. Datta advised major companies on the market potential of renewable power plays and defined specific entry paths in the US and Europe. The renewable plays included wind, fuel cells, solar, biomass and hydrogen technologies. The team evaluated potential alliance and acquisition candidates and developed specific recommendations on which renewable plays were economically viable.

Corporate Environmental Management

EHS Shared Services Transformation: For a major petroleum company, Mr. Datta had sole responsibility for leading an 18 month effort to reorganize the client's worldwide environmental, safety, and health departments into a cohesive shared services organization. Mr. Datta lead a 12 member client team in business process reengineering and organizational redesign of the client's environmental, health and safety organization and development of the client's long term environmental strategy. The effort entailed extensive activity based costing, process mapping, job redefinition, and performance measurement.

The study encompassed a risk based management approach to the client's environmental and capital operating expenditures. Specifically, Mr. Datta developed the screening process, qualitative and quantitative tools for prioritizing expenses against environmental and safety risks. This approach, combined with regulatory analysis was used to develop the client's environmental strategy, that was approved by the Board of Directors.

Overall, this activity improved the client's environmental performance, while saving over $20 MM per year in direct expenses and over $30 MM/yr. in operating and capital costs.

Mr. Datta similarly redesigned the clients Legal function, developing the processes, organizational structure, systems and litigation strategy for the Legal shared service. This activity saved the client over $20 MM I direct expenses

Environment Strategy and Organizational Design: Mr. Datta managed an assignment for a large aerospace company to comprehensively evaluate their corporate environmental management system. In this effort, Mr. Datta evaluated the corporate ESH function versus Booz, Allen's high performance organization model and conducted benchmarking of other aerospace ESH programs to determine industry best practices. The study recommended changes in organizational structure, performance measures, ESH corporate policy, principles, and operating guidance.

For a mid-sized Southern utility, Mr. Datta determined the optimal definition for its environmental organization to assist the utility in meeting its the current and future environmental challenges The study developed a through multimedia assessment of environmental challenges facing the utility and included a

comprehensive analysis of the integration of environmental issues into the utility's organizational structure and management processes. The effort culminated in detailed recommendations regarding management processes, including reporting relationships, measurement and incentive systems, information requirements, and structural changes.

For a mid sized utility, Mr. Datta assessed the financial and regulatory risks for storage of low level and high level nuclear waste. This effort included engineering cost estimates for different storage technologies at the utility site and assessing the relative regulatory risk of each option. For this same utility, Mr. Datta also developed a cost structure model for least cost compliance with acid rain legislation.

Business Process Reengineering of Environmental Expenditures: For the marketing division of major oil company, Mr. Datta managed the business process reengineering of the UST remediation program, saving the company $20- 30 MM per year (over $100 MM in NPV). In this effort, Mr. Datta lead a client team that analyzed industry best practices, assessed cost internal benchmarks, developed site management protocols and scopes of work, and set performance measures to guide the program implementation.

For a major chemicals company, Mr. Datta managed the business process reengineering of the corporate and plant ESH function. The effort includes comprehensive changes in organizational structure and headcount, purchasing processes for environmental services, management of workman's compensation claims, and delivery of ESH training to line personnel.

For a major pipeline company, Mr. Datta participated in the assessment of the compliance and audit functions to identify areas for business process reengineering.

Market Entry Strategy for Environmental Technologies

Renewable Market Entry: In two separate studies, Mr. Datta advised major oil companies on the market potential of renewable power plays and defined specific entry paths in the US and Europe. The renewable plays included wind, fuel cells, solar, biomass, and hydrogen technologies. The team evaluated potential alliance and acquisition candidates, and developed specific recommendations on which renewable plays were economically viable.

Air Pollution Control: In 1993, Mr. Datta evaluated the U.S. market potential for a adding NOx control to a regenerative SOx-pollution control system. The study focused on the comparative economic advantages of the new technology addition against incumbent low NOx burners and overfire air technology for wall fired, tangential, and cyclone coal boilers. In addition, Mr. Datta reviewed the current and pending regulations for NOx control.

In two separate studies during 1991-2, Mr. Datta worked with a new entrant and an existing player in the pollution control industry to evaluate the commercial viability of new technologies to remove acid rain pollutants from power plant emissions. Mr. Datta developed an economic model comparing the cost and performance characteristics of competing technologies and assessed the market impact of acid rain legislation.

Solid Waste: Mr. Datta evaluated market entry strategy for a European firm with a starch based biodegradable packaging material. Specifically, Mr. Datta estimates the potential market size for viable market segments and developed a model to compare cost structures of competitive materials. Based on this analysis, Mr. Datta recommended that the client not enter the U.S. market.

Hazardous Waste Markets: Mr. Datta developed a marketing strategy to improve the competitive position of a large diversified environmental services company. The assignment encompassed market evaluation, cost assessment, user segmentation, and regulatory assessment. In the market evaluation, Mr. Datta determined the attractiveness of the disposal, incineration, remediation, and recovery segments of the environmental services market, including regulatory drivers, market size and growth, capacity utilization, and relative market shares. In the cost assessment, Booz Allen analyzed the cost drivers of the landfill and incineration operations to provide both cost by product line and by activity center. In the user segmentation, Mr. Datta performed a survey of major waste producers to segment them based on their service requirements. In the regulatory assessment, Mr. Datta assessed the impact of major new regulations, such as the proposed soil and debris rule.

Before joining Booz, Allen, Mr. Datta was Director of Research at the Windstar Foundation in Aspen Colorado.

In 1989, Mr. Datta received an MPPM from the Yale School of Organization and Management and a MES in Resource Economics from the Yale School of Forestry and Environmental Studies. He received B.S.in Biology from Yale University in 1983.

Carl Freedman

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EXPERIENCE: Utility Policy, Regulation and Economics

Integrated Resource Planning

- Was a primary participant in the Hawaii PUC docket and collaborative establishing the current Framework for Integrated Resource Planning for Hawaii's energy utilities
- Performed a comprehensive review of the IRP's for each of Hawaii's energy utilities on behalf of the Hawaii Division of Consumer Advocacy (Consumer Advocate)
- Represented the Consumer Advocate on the IRP Advisory Groups of each Hawaii energy utility
- Developed a Scenario Analysis Model incorporating a capacity expansion and production cost model for long term evaluation of conventional, renewable and conservation resources for Hawaii's electric utilities
- Currently is under contract to prepare comprehensive Integrated Resource Plans for the Maui County Board of Water Supply for the Maui County Water Use and Development Plan

Demand-Side Management (DSM) Incentives and Implementation

- Represented the Consumer Advocate in the DSM Cost Recovery and Incentives Working Group considering mechanisms for the Hawaii electric utilities
- Presented testimony to the Hawaii PUC analyzing various DSM cost recovery and incentive options, including recommendations for a "sales decoupling" mechanism for Hawaii's utilities.

Renewable Resource Development

- Represented the Hawaii Division of Consumer Advocacy in the PUC investigation on Barriers and Strategies to Remove Barriers to Renewable Energy Development
- Selected as primary editor and chaired the authoring committee of the *Collaborative Document: Renewable Energy Resources Investigation,* cataloguing the findings of the twenty-one parties in the docket and forwarded to the Hawaii Legislature by the PUC
- Presented testimony and rigorous analysis to the Hawaii PUC quantifying the capacity value of wind resources to Hawaii electric utility systems
- Conceived and proposed one of the nation's first 'set aside' regulatory strategies for promotion of renewable resource development, adopted as an administrative rule by the Oregon Energy Facilities Siting Council in 1979
- Developed the first production costing methods capable of evaluating wind energy resources in conjunction with variable hydroelectric conditions for the Pacific Northwest electric system (1978)

Electric Industry Restructuring, Competition and Deregulation

- Represented the Hawaii Division of Consumer Advocacy in the PUC investigative docket collaborative on electric industry restructuring, competition and deregulation.

Incorporation of Externalities in resource planning.

- Proposed an Externalities Collaborative to establish Hawaii-specific externality values to be used in Integrated Resource Planning (in testimony on behalf of the Consumer Advocate); rejected by the Hawaii PUC in favor of a utility-run investigation with an advisory group process
- Represented the Consumer Advocate on the Hawaii electric utility Externalities Investigation Advisory Group and drafted the Consumer Advocate's analysis, critique and recommendations regarding the utility externalities investigation

OCCUPATION

1991 - 2006	Consultant, Sole Proprietor: dba Haiku Design and Analysis Public Utility Regulatory Affairs Integrated Resource Planning Energy Resource Economic Analysis
1991 - 2001	Hawaii IRP Advisory Group Representative Division of Consumer Advocacy Department of Commerce and Consumer Affairs State of Hawaii
1999 - 2000	Member, Subcommittee on Alternate Energy and Conservation Maui County Council
1989 - 2002	President, Administrator Blue Ocean Preservation Society, Haiku, Hawaii.
1990 - 1991	Hawaii Public Utilities Commission Integrated Resource Planning Collaborative Participant
1979 - 1981	Participant Representing the State of Oregon Energy Forecasting Delphi/Monte Carlo Pool Pacific Northwest Utilities Conference Committee
1977 - 1987	Partner, Analyst on Utility Economics and Policy Forelaws On Board, Boring, Oregon.

FORMAL EDUCATION

1970 - 1973	Reed College, Portland, Oregon

CONTESTED CASE SWORN WRITTEN TESTIMONY

1977 Before the Nuclear Regulatory Commission, AS&LB;
Testimony regarding the economics of the Pacific Northwest electrical generating system.

1978 Before the Oregon Energy Facility Siting Council;
Testimony analyzing the energy forecasts of Portland General Electric, Pacific Power and Light and Puget Sound Power and Light Companies. Included a twenty year energy forecast for Pacific Power and Light.

1978 Before the Oregon Energy Facility Siting Council;
Testimony regarding the availability and cost of wind turbine generation including an hourly analysis of regional wind speed data utilizing a production cost model for the Pacific Northwest Region over a twenty-year period.

1978 Before the Oregon Energy Facility Siting Council;
Testimony on the comparative costs of over- and under-building resources including a probabilistic analysis of costs for the Pacific Northwest system under various load growth, resource expansion and hydroelectric availability scenarios.

1979 Before the Public Utilities Commissioner of Oregon;
Testimony regarding the expected value of voluntary conservation measures typically made during adverse hydroelectric conditions in the Pacific Northwest.

1991 Before the Public Utilities Commission of Hawaii;
Testimony regarding a proposed framework for an Integrated Resource Planning process for Hawaii's energy utilities.
Docket No. 6617.

1993 Before the Public Utilities Commission of Hawaii;
Testimony evaluating GASCO's Integrated Resource Plan application and representing the position of the Consumer Advocate. Docket No. 7261

1993 Before the Public Utilities Commission of Hawaii;
Testimony evaluating Hawaiian Electric Company's Integrated Resource Plan application and representing the position of the Consumer Advocate.
Docket No. 7257

1994 Before the Public Utilities Commission of Hawaii;

Testimony evaluating Kauai Electric Division's Integrated Resource Plan application and representing the position of the Consumer Advocate. Docket No. 7260

1994 Before the Public Utilities Commission of Hawaii;
Testimony evaluating Maui Electric Company's Integrated Resource Plan application and representing the position of the Consumer Advocate. Docket No. 7258

1994 Before the Public Utilities Commission of Hawaii;
Testimony evaluating Hawaii Electric Light Company's Integrated Resource Plan application and representing the position of the Consumer Advocate. Docket No. 7259

1994 Before the Public Utilities Commission of Hawaii;
Testimony evaluating Hawaiian Electric Company's Commercial Demand-Side Management Programs. Docket No. 94-0010

1995 Before the Public Utilities Commission of Hawaii;
Testimony regarding generation efficiency, fuel expense, fuel cost adjustment methods and need for new generation in Maui Electric Company's rate case. Docket No. 94-0345

1995 Before the Public Utilities Commission of Hawaii;
Testimony regarding generation efficiency, fuel expense, purchased power capacity and energy costs, fuel cost adjustments and the need for new generation in Hawaii Electric Power & Light's rate case. Docket No. 94-0140.

2000 Before the Public Utilities Commission of Hawaii;
Testimony regarding wind generation capacity value and contribution to utility system reliability considering Apollo Energy Co. Purchased Power Agreement with Hawaii Electric Power & Light. Docket No. 00-0135

TESTIMONY IN RULEMAKING PROCEEDINGS RE: UTILITY RESOURCE PLANNING

1979-82 Before the Oregon Energy Facility Siting Council;
"Need for Power" Standards for large energy facilities. Participated as one of the primary crafters of the adopted language. This was one of the first resource planning rules to explicitly incorporate conservation as a utility resource.

1979-80 Before the Oregon Energy Facility Siting Council;

"Specific Standards for Siting Wind Facilities." Participated as a primary crafter of the adopted language.

1979-84 Before the Oregon Energy Facility Siting Council;
Testimony regarding the various Specific Standards adopted for Biomass, Cogeneration, Geothermal and Coal facilities.

1989 Before the Hawaii Dept. of Land and Natural Resources;
Testimony regarding "Geothermal and Cable System Development"

CERTIFICATE OF SERVICE

I hereby certify that I have on this date served a copy of Rocky Mountain Institute's Opening Brief upon the following parties and participant, by hand delivery or by causing a copy hereof to be mailed, postage prepaid, and properly addressed to each such party or participant.

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